

Zero Retries issue 0220 2025-09-19

Zero Retries is an independent newsletter promoting technological innovation in and adjacent to Amateur Radio, and Amateur Radio as (literally) a license to experiment with and learn about radio technology. Radios are computers - with antennas! Now in its fifth year of publication, with 3200+ subscribers.

About Zero Retries

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Commentary by Editor Steve Stroh N8GNJ

Paid Subscribers Update

My thanks to **Todd Willey KQ4FID** for *renewing* as a **Founding Member Subscriber 0006** (for a 3rd year!) to Zero Retries this past week!

Founding members are listed in every issue of Zero Retries!

My thanks to **Bill Sefton N6OWF** for *renewing* as an **Annual Paid Subscriber** to Zero Retries this past week!

My thanks to **Mike Holland KK4PMW** for *upgrading* from a free subscriber to Zero Retries to an **Annual Paid Subscriber** this past week!

Financial support from Zero Retries readers is a significant vote of support for the continued publication of Zero Retries.

Busy September 2025!

In addition to pushing out this, and next week's issue of Zero Retries, by the end of September 2025 I have two big projects to complete:

- Archive and potentially migrate my Typepad blogs, including superpacket.org and n8gnj.org
- Edit the 9+ hour video of ZRDC 2025 and post it for the attendees of ZRDC 2025 and those who paid to access it early.

Both are very high priority projects with deadlines. Wish me luck!

ZRDC 2025 Recovery Mode

The days immediately after ZRDC 2025 were for catching up on some much needed sleep, spending a couple of days hosting two new friends, and just generally relaxing. It was badly needed, especially for Tina still recovering from recent surgery. That's why this issue will barely make the usual Friday publication day (Pacific time).

Thus there won't be any Zero Retries Interesting news again this issue, but I promise that in the next issue - Zero Retries 0221, while there may be some GRCon 2025 / ZRDC 2025 items, those won't be the sole content.

Pacificon 2025 - Ho!

Tina and I will plan to attend Pacificon 2025 which will be held 2025-10-10 thru 12 in San Ramon, California USA.

Zero Retries will have a table to talk about Zero Retries, and all manner of Zero Retries Interesting topics with time and space to chat with attendees. There will be a number of exhibitors and attendees at Pacificon that are particularly Zero Retries Interesting, including the MMDVM Project and AREDN.

I'm also on the schedule for a presentation - **MORE Technological Innovation in Amateur Radio**.

I'll have more details about our participation at Pacificon in future issues of Zero Retries. If you'd like to meet up (or, perhaps a Zero Retries meetup?), just let me know.

Weekends Are For Amateur Radio!

Have a great weekend, all of you co-conspirators in Zero Retries Interesting Amateur Radio activities!

This weekend, things worked out that Tina and I will be able to participate in a public service event here in Bellingham - providing voice communications support for a local marathon. That will be a fun Amateur Radio activity and a welcome brief break from Zero Retries "busyness" for both Tina and I.

Steve N8GNJ

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Zero Retries Digital Conference 2025 Wrap Up

By Tina Stroh KD7WSF

This is the last in a series of weekly updates for Zero Retries Digital Conference 2025.

My final article for the ZRDC 2025! But where to begin? There are so many thanks to give, it's difficult to know where to start. At the risk of missing

someone, let me just say MANY, MANY, thanks to all that helped us make the ZRDC a success.

The highlights of the day for me were meeting and seeing new faces in the audience, introducing Steve to the stage for the opening keynote address, listening to our speaker's presentations, having an impromptu photographer, watching groups of people coming together during lunch and the after conference pizza party, all discussing amateur radio.

We have stated several times that hosting a conference was a long time dream of ours. For one reason or another, we just didn't have the means to do it. But this year was different. After the HamSCI conference, we elected just to go for it. So with less than six months of planning, I had the privilege and honor to welcome my husband (Steve N8GNJ) and who I still call the love of my life, to the stage to start this all day discussion of amateur radio. If you couldn't guess, Steve is very passionate about amateur radio and looks for the new innovations for amateur radio.



Steve Stroh N8GNJ Keynote for ZRDC 2025 - Photo courtesy of KaytLynn Inman

He truly lives his phrase "amateur radio is a license to experiment with radio technology". I was asked several times if I was related to Steve and the woman at the registration desk. So, yes, I am happily married to Steve and the woman at the registration table was our daughter, Merideth Stroh KK7BKI. Just to add more confusion, Merideth also works for ARDC so that is why she had many conversations with people about ARDC.

In looking at the attendee list, there were only five people I knew. The remaining folks were new to me and between hosting duties, I got to meet some of these Hams. To me, this is extremely exciting as it demonstrates there are Hams who want to learn more about amateur radio and the technologies that are developing. That was the specific goal and main objective for hosting this conference. The presentations were awesome and each speaker entertained comments and questions. One lesson learned was to allow more Q&A time as the presentations brought questions from the attendees. One very nice surprise was Hunter Inman brought his wife, KaytLynn to the conference. She asked if she could take pictures for us. What a blessing! We are now getting

some pictures that we will be sharing in the coming issues of Zero Retries.

Lastly, seeing groups come together at lunch, during breaks and at the after conference pizza party, was the absolute best gift of all. People engaged with one another and continued talking about amateur radio. I sincerely hope new friendships were made and collaborations continue on. I can't think of any better reason to hold a conference than to discuss topics, work collaboratively and finding solutions to problems.

In closing, my sincere thanks to all who made our dream come true. We look forward to doing this again next year with all of our lessons learned.

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Zero Retries Digital Conference 2025 Debrief - Part 1

By Steve Stroh N8GNJ

Zero Retries Digital Conference (ZRDC) 2025 on Saturday, 2025-09-13 in Everett, Washington, USA is now history. For me, it went by in a blur. It's still hard to process all my impressions and takeaways, thus this will be Part 1. I will eventually concatenate this and following articles into a coherent whole. That's because one of my personal plights of significant conferences (of which I consider ZRDC 2025) is that the significance of conferences are largely "untold", except when there's a seminal announcement or development at a conference, and I have the opportunity to do better with ZRDC 2025.

Presaging ZRDC 2025 - GRCon 2025

My assertions about the significance of technological innovation in Amateur Radio and the role of ZRDC 2025 in the next section were abundantly reinforced by having attended the entire week of GNU Radio Conference 2025 the week before ZRDC 2025.

The development of radio technology *enabled by GNU Radio* (GR) is amazing, and will undoubtedly accelerate with the realization of GR 4.x and successive generations of GNU Radio based on 4.x. The relevance of 4.x for Amateur Radio is that GR 4.x will be developed with the expectation (and requirement) that GR 4.x flowgraphs will be optimized for *both human and AI development*¹. If you've been realizing productivity gains in using AI chatbots, you can probably guess what that's going to mean for developing and testing new radio technologies, modes, and systems. What we can dream, we can probably develop with help from AI. Some big AI organization is going to soon discover GNU Radio and the nascent 4.x branch, and provide significant support in order to get first mover advantage of developing new radio technology with their AI.

The relevance to technological innovation in Amateur Radio was the statement by one of the GRCon 2025 organizers, who is an Amateur Radio Operator, who had access the registration list and stated in open conversation that approximately 50% of the attendees of GRCon 2025 have an Amateur Radio license.

Thus, in my view, that presages that Amateur Radio is poised to become an experimental proving ground for developing and testing new radio technologies, modes, and systems. There are many GNU Radio developers that have interesting ideas, and they will want to experiment with those ideas, and they know about the spectrum that they can use as a licensed Amateur Radio Operator.

But enough about GRCon 2025... for now. Like ZRDC, I'll have more to say about the lessons learned and takeaways from GRCon 2025.

The Big Picture of ZRDC 2025

As I tried to express in my opening keynote talk is that the selection of topics and speakers for ZRDC 2025 was very deliberate, even calculated. In those choices, I attempted to provide some visibility of the *totality* of the *scale and breadth of technological innovation* that's occurring *now* in Amateur Radio... and *accelerating*.

That *totality* of technological innovation that's occurring in Amateur Radio *now* is, in my view, solely being reported out into Amateur Radio by Zero Retries and now ZRDC 2025. In doing so, I find myself an unlikely, and in many aspects, unsuited messenger of those developments, but so be it. Amateur Radio really deserves to have this story told, and if I'm the only one willing and able to do so, I'll do the best that I can.

The Hidden Heroes of ZRDC 2025

Before I launch into what was discussed at ZRDC 2025, a few Thank You acknowledgements are in order.

Tina Stroh KD7WSF

ZRDC 2025 wouldn't have been possible without my wonderful wife Tina Stroh KD7WSF who literally made ZRDC 2025 happen. As an organizer of complex projects like ZRDC 2025... I'm a fair writer. Which is to say, Tina did all the "heavy lifting" of ZRDC 2025.

Don Rotolo N2IRZ

Don stepped up during the preparations of ZRDC 2025 to volunteer to solicit and compile papers offered, and presentations, into a formal ZRDC 2025 Conference Proceedings.

Dynamic Impact Audio Visual - Yusuf Adzhiyev

All of the audio and video production and streaming of ZRDC 2025 was incredibly well done by [Dynamic Impact Audio Visual](#). After a brief discussion prior to the event about what the arrangements would be for ZRDC 2025, Yusuf "just handled it" and did a great job. I had no worries, and no hassles about the AV issues. Thus I recommend them, and specifically Yusuf very, very highly. If you have *any* requirements for event audio / video / streaming in the entire Pacific Northwest, I strongly recommend Dynamic Impact Audio Visual.

KaytLynn Inman Photographer

The majority of the photos you'll see from ZRDC 2025 will be taken by KaytLynn Inman who is the wife of ZRDC 2025 presenter Hunter Inman KK7NQ. KaytLynn volunteered to take photos at ZRDC 2025 and Tina and I gratefully accepted her offer, realizing that was one of the "oops, forgot that detail" lessons learned from ZRDC 2025.

Merideth Stroh KK7BKI

Our daughter Merideth helped us enormously during ZRDC 2025 by helping Tina assemble the registration materials and on conference day, managing the registration desk and handling lots of administrative tasks, as well as answering lots of questions about ARDC (her day job).

Papers Submitted for ZRDC 2025

There were three papers submitted for inclusion in the ZRDC 2025 Proceedings:

- **Optimizing Wide-Band SDR Receiver Performance** by Paul Elliott WB6CXC
- **After 38 Years, Do I Still Get a Kiss?** by Mike Cheponis K6THZ and Phil Karn KA9Q
- **The SuperPeater Concept** Steve Stroh N8GNJ

All three papers will soon be available for download on the ZRDC 2025 page.

My ZRDC 2025 Keynote - Technological Innovation In Amateur Radio

I'll just hit a few highlights from my ZRDC 2025 Keynote presentation. For more context, my slide deck (PDF) is posted on the ZRDC Conference page (soon to be reorganized to move all ZRDC 2025 information to a Past Conferences section). I try to use my slide decks as launching points, not "talk the bullet points", and I hope that will be evident when the ZRDC 2025 video is publicly available.

I recounted a bit of my Amateur Radio history, and the history of Zero Retries and its "mission creep".

I explained my discovery of NewTechHams and why they are a significant change in Amateur Radio.

I "bullet pointed" what we *would* hear about in the ZRDC 2025 presentations, and some other technological innovation in Amateur Radio that we wouldn't hear about at ZRDC 2025 (but I wanted to touch upon). There was *only so much time* in a one day conference.

I specifically mentioned the significance of the emergence of Meshtastic as indicative that individuals want to experiment with radio technology - Amateur Radio not really required, and LinHT - how big a change that will initiate.

I was particularly proud of this slide:

Amateur Radio Secret Innovation Weapon

- FCC §97.309(a)(4) RTTY and data emission codes
- An amateur station may transmit a RTTY or data emission using an unspecified digital code, provided that the technical characteristics of the emission are publicly documented.
- So basically we can do anything within the general framework - non-commercial, non-encrypted, within Amateur Radio allocations.

During the Q&A I was asked (paraphrased) "What does the FCC mean by *publicly documented*?" I quoted back *publicly documented* because that's *all the FCC Part 97 regulations have to say about it* - "publicly documented". My interpretation² of that is that if the details of a new system is posted in public prior to first use of that new system, and someone wants to go back and "replay" a transmission (remember, we can now record "spectrum") using the *publicly documented* information, that meets the requirements of §97.309(a)(4).

I highlighted the new factor of ARDC grants to accelerate technological innovation in Amateur Radio.

I think that New Media Models being free and publicly accessible are a powerful new factor in explaining technological innovation in Amateur Radio. I also mentioned the profound influence of Digital Library of Amateur Radio & Communications / Internet Archive as a repository for "prior art" in technological innovation in Amateur Radio.

And I touched on the possibility of that there might be an opening for a new model of Amateur Radio Organization that would be international, online-only, free, and focused mostly on technology.

My concluding slide:

Amateur Radio of the 21st Century

- Digital / Data
- Software mostly
- Lots of technology focus
- Adjunct to technical careers
- Relevant
- Easy to explain the fun / interest / justification to peers

KK7NQN Transcriber Service Node

Hunter Inman KK7NQN spoke (very impressively!) without slides about his project, the KK7NQN Transcriber Service Node (in operation at <https://kk7nqn.net/index.html>). Hunter described his motivations for developing it, his methodologies, his tools (which AI systems he used), and his continuous improvements he was making on it. I was gratified that Hunter had already implemented one feature I suggested, being able to search for a specific phrase, and trigger a notification for a search phrase, or one's callsign.

The Transcriber Service Node really does bridge “voice only” repeaters and Amateur Radio data communications and Amateur Radio Over Internet.

One of the profound moments was during the Q&A period and one attendee asked if Hunter’s work was publicly available and he said “Of course - it’s all on Github”.

Hunter’s presentation on the ZRDC 2025 video will be amply informative.

Pro Tip - I’m told Hunter is not currently a professional software developer. But in my opinion, *he should be* given that he’s been able to harness open source AI tools (and interfaces) into such an incredibly useful tool... *as a hobby project*. As I quoted in Zero Retries 0219 last week, employers in this era are looking for demonstrated capabilities, not “paper” credentials or a list of past employers and positions. In my opinion and direct experience with Hunter, he would be a tremendous asset to any organization.

Earth Moon Earth - With Software Defined Radio

Dennis Rosenauer AC7FT provided a great overview of his handcrafted, completely unique EME system that could deliver over 500 watts at 1296 MHz into a tightly focused dish tuned for that frequency. Dennis’ EME system is based on equal parts Software Defined Radio and custom hardware. Dennis offered a couple of great quotes to illustrate the SDR aspect such as

Real Radios are written in C, Verilog, Python, and C++...

It was fascinating to hear pragmatic details such as using USB to communicate between subsystems caused too much Radio Frequency Interference (RFI) to his highly sensitive receiver. Dennis’ solution to that issue was simply to use several dedicated RS-232 serial links (no RFI!) as the data being exchanged is very small and well within the capabilities of RS-232.

Dennis’ concluding great quote:

It’s amazing what you can do with a few thousand lines of C!

Amateur Radio’s Virtual Universal Library - DLARC

Kay Savetz K6KJN spoke about DLARC with a brief overview of the fascinating archival material that is now part of DLARC, but tailored this presentation to a “Zero Retries Interesting” focus for ZRDC 2025.

Kay discussed archival Amateur Radio technically focused magazines such as 73, VHF Communications, SatFACTS, and A5. Kay went on to discuss the discovery and procurement (using Freedom of Information Act requests) of technical notes of the early ALOHAnet (the first... at least civilian... packet radio network) which was documented in “Packet Radio Temporary Notes” which until Kay was able to retrieve them and post them on DLARC have not ever been posted online (though there was some discussion that they *were*, but to date, no online record has been found).

Lastly, Kay mentioned the TAPR section of DLARC, which has a more comprehensive archive of TAPR material than TAPR itself offers on its current website.

Hailing Channel for Packet Radio

At my specific request, Bryan Hoyer K7UDR reprised his Hailing Channel (HC) concept originally presented in 2012. I think that the HC data transmitted on the APRS channel / format (144.39 MHz using 1200 bps AFSK AX.25 / APRS) concept could... *should*... be the cornerstone of the many new (and disparate) data networks that are emerging.

We really need the situational awareness that a Hailing Channel would provide such as my N8GNJ Labs station beaconing on 144.39 APRS that (for example - work in progress) I have the following Amateur Radio resource online in (currently) the area of Bellingham / Whatcom County Washington USA (grid CN88ru):

- AREDN connectivity on 902.xxx (new 802.11ax capacity in AREDN)
- HamWAN connectivity,
- VARA FM on 444.xxx
- BBS on 222.xxx at 9600 bps
- Web SDR (KiwiSDR) at (Amateur Radio IP address 44.xxxx.xxx.xxx)
- Etc.

All of this would be authenticated with a private / public key so that it can be authenticated that it’s being broadcast by N8GNJ.

Imagine how useful a Hailing Channel will be when it’s commonplace for “new mode of the week” made possible with AI assisted GNU Radio / Software Defined Radio! If you don’t have prior notification of a new mode (and have downloaded the new software) you won’t be able to decode / participate in the new mode. But with a Hailing Channel, as soon as the new mode begins being used, the Hailing Channel lets you know about it with a pointer to where the details can be found.

As Bryan mentioned, I did offer input to the (then new) APRS Foundation that in my opinion, the Hailing Channel concept should be a new, priority project of theirs, but that recommendation wasn’t acted upon.

I plan to follow up with and promote K7UDR’s (and the blessing of APRS creator Bob Bruninga WB7APR) the Hailing Channel concept in future issues of Zero Retries. The Hailing Channel concept is one of the ideas that may not be immediately obvious, but with exposure, the wisdom of that approach grows on you and you realize that it’s the answer to an currently unmet need in (Zero Retries Interesting) Amateur Radio activities.

ARDC 44Net VPN

Schuyler Erle N0GIS discussed a brief history of Amateur Radio Digital Communications (ARDC), its grant making activity. He then explained 44Net, but tailored his presentation after a show of hands revealed that almost every attendee was familiar with 44Net and Virtual Private Network (VPN) concepts.

(We had a very active 44Net subnet - 44.24 here in Western Washington.)

Schuyler then discussed the new 44Net Virtual Private Network which is essentially a privately run [Wireguard VPN](#) for 44Net users. One audience for a 44Net VPN is folks like me that use an Internet Service Provider (ISP) such as Starlink that uses Carrier Grade Network Address Translation (CGNAT) which essentially makes it impossible to connect to a CGNAT user like me *from* the Internet without VPN technology.

Though ARDC has not formally announced this capability, it's publicly available for any Amateur Radio Operator to use:

<https://dashboard.44net.cloud>

As I understand the process:

- Register
- Request your preferred 44Net block size
- Download the Wireguard configuration file
- Load the Wireguard configuration file onto your Wireguard capable router unit
- Set up your own 44Net network in your shack

On that note, [this recent development](#) by Dan Srebnick K2IE directly relates to 44Net VPN:

I have some exciting news. The ampr-ripd package that I put together for OpenWrt is now part of the 24.10 release. So if you're running 24.10.x:

```
opkg update
opkg install ampr-ripd
```

will install it.

/etc/init.d/ampr-ripd configure will provide some help on how to configure it to use your Net 44 subnet and assign a host address.

This will make Net 44 quite accessible to OpenWrt users without a high learning curve.

Feel free to give it a whirl and spread the word.

Thanks to Marius YO2LOJ for accommodating a request for some minor changes to ampr-ripd to satisfy the OpenWrt package reviewers.

I thought 44Net VPN was more “scary and mysterious” than this, but getting started and setting up a 44Net VPN and network is simple enough. I just purchased a new Wireguard capable router online. To be safe(r), I'll load OpenWRT (I confirmed before purchase that the new router supported OpenWRT) and then the 44Net VPN Wireguard file.

Schuyler was asked if 44Net VPN can be used to access older 44Net address blocks, and currently that's not possible. 44Net VPN has been allocated its own 44Net address block, and currently only those addresses can be routed via 44Net VPN.

Schuyler and a few attendees cautioned those that are new to 44Net that these are “raw, live, unprotected IPv4 addresses” and thus *will be attacked* (no firewall protection is provided by 44Net) and thus either provide your own firewall, or keep your 44Net devices completely patched or too simple to be effectively attacked.

Update - I thought to research if OpenWRT has firewall capability, and ChatGPT says it does.

IP400 Networking Project

Garvin F. Cole VE6GFC was ZRDC 2025's only virtual presenter. Tina and I felt strongly that IP400 should be discussed at ZRDC 2025, despite no one being available to present about IP400 in person, or to provide a demonstration, we made an exception to ZRDC 2025's strong preference for in-person presentations.

The big news in Garvin's presentation regarding IP400 were:

- Reveal of the Mini Node II
- Reveal of the Next Generation Node Hardware II
- Both of those new items will be available from a commercial distributor in the US in 2025-10
- *Mini Node II (and Mini Node?) are capable of 600 kbps.*

That last bullet was news to me - a pleasant surprise. (No additional details - bandwidth, etc. were discussed.)

The Next Generation Node Hardware II is suitable for remote operation / pole mount (in a PVC pipe) and will be an integrated assembly of:

- 3D printed base assembly and cap assembly for the PVC pipe
- Power via Ethernet (*no compatibility* with conventional Power Over Ethernet such as 802.3af was mentioned)

- IP400 Mini Node II
- Power amplifier to 5 watts
- 9 dB antenna

There was some discussion of the longer term plans for the IP400 Network Project.

Garvin concluded his presentation with a request that the IP400 Network Project would welcome additional software (and other) developers.

The IP400 slide deck presented at ZRDC 2025 is available at:

<https://github.com/adrcs/Presentations/blob/main/ZRDC/IP400%20presentation%20-%20ZR%20Conf%20Sept%202025.pdf>

AREDN Microwave Networking

Tim Wilkinson KN6PLV was graceful to step up as a presenter when our planned presenter for a presentation on Microwave Networking was not able to appear. Tim had planned to be an attendee of ZRDC 2025, and we're very grateful to him to salvage the Microwave Networking presentation slot.

Tim is the current lead developer of AREDN and discussed the recent big changes in AREDN, that will discontinue the use of the OLSR protocol (Optimized Link State Routing) in favor of the Babel protocol for establishing and maintaining automatic mesh networking in an AREDN network. That change will take effect at the end of 2025; all AREDN software released in 2026 and beyond will be "Babel only".

Tim also highlighted the significant change in the Graphical User Interface of an AREDN node which is far more informative (and intuitive) in providing needed information about what's happening in an AREDN network.

The update to AREDN that I was most interested to learn more about is that AREDN now supports a viable option for use of the 902 - 928 MHz band by units that use the 802.11ah wireless networking standard. I think this has huge potential for building AREDN mesh networks that cannot be built with 2.x or 5.x GHz microwave networks, for example in "no outdoor antennas" communities where 902 - 928 MHz may well be usable with antennas in attics or stealthily concealed on balconies.

Given that AREDN is native TCP/IP v4, and offers speeds comparable to "regular Internet" and thus supports all Internet applications including video, VOIP, etc. I think that it will / should become the default Amateur Radio network of choice when the needs of an AREDN network can be met - generally high level access points, with reasonable line of sight from users to at least one high level access point.

Optimizing Wide Band Receiver Performance

Paul Elliott WB6CXC also stepped up to fill our final speaker slot when our planned presenter for that slot was too ill to travel. Paul gave an excellent technical overview of his subject and also submitted a paper for the ZRDC 2025 Proceedings on the same subject. I confess that I wasn't able to sit for all of this presentation as Tina and I were busy adjusting the schedule and last minute details for the final hour of ZRDC 2025.

M17 - Open Source Digital Voice

Jeff Scoville AE5ME was our planned presenter for the final speaking slot - M17 - Open Source Digital Voice, but during the week prior to ZRDC 2025, Jeff became ill and could not travel to ZRDC 2025. However, Jeff was able to do his presentation independently:

Here is a link to the RECORDING I made of my presentation. People are encouraged to send questions to ae5me@yahoo.com or wait until next week's M17 net on Kansas City Wide.

Great conference-- you guys did an all-star job. I learned quite a bit from all the presenters! I know it would have even been more fun with the in-person interaction as well.

https://us02web.zoom.us/rec/share/9hjYQTWAgAtovbQSD2fdCu9MD1o3QBGEJQW2HaW6-TFCsFR3wjJztKb_10H-JieA.mLI7RYVMhSX3iOpE?startTime=1757811970000

Passcode: .g5ArHeS

To wrap up ZRDC 2025, to "keystone" the general overview of technological innovation in Amateur Radio, I quickly breezed through Wojciech Kaczmarek SP5WWP's presentation on LinHT (Linux Handie Talkie) that he had provided me from the M17 Conference the prior weekend. Showing some of the details of LinHT such as the clever hack of using a generic, inexpensive handheld VHF / UHF FM radio from a vendor in China, that it would run GNU Radio flowgraphs natively, that it was actually running as a prototype test, were all indicative that Amateur Radio will soon be based on user-changeable Software Defined Radio technology.

Door Prizes

Tina managed the door prizes so effectively that (we're reasonably sure) every attendee (that wanted one) got at least one of the ZRDC 2025 door prizes. I was particularly proud that all the door prizes were "Zero Retries Interesting" such as handheld radios with AOIC (data / programming) adapters, two M17 handheld radios, and two newly developed Software Defined Receivers, and two autographed books on Software Defined / GNU Radio. Tina and I will make a full report of door prize awards, and the ZRDC sponsors that provided them, along with photographs and names of the winners, and do so within the following week.

The coolest thing that happened with the door prizes is that the AnyTone AT-D578UV PRO mobile DMR radio that I donated (Steve Stroh N8GNJ and N8GNJ / Zero Retries Labs) as a door prize was won by Joe Hamelin W7COM. But, Joe immediately re-donated it to Hunter Inman KK7NQN to aid Hunter's work on his Transcriber Service Node (which now may include DMR repeaters).



ZRDC 2025 Attendees and staff that stayed to the end - Photo courtesy of KaytLynn Inman

The After Conference Pizza Party (Reception)

After the conference, approximately fifteen conference attendees adjourned to a pizza restaurant across the street from the conference center. Our timing / planning on that was a bit poor as we didn't anticipate that much of the Everett-area population would be descending on the hockey rink that was part of the conference center complex for an exhibition hockey game.

The ZRDC 2025 Video...

The Zoom stream was recorded and this will be my video editing baptism by fire. From what I've read, my preferred video editor (iMovie) can do handle the minor video editing I think is required to make the video record of ZRDC 2025 watchable. I don't want to just slap up a 9+ hour video file, with lunch and break pauses and all, and call it good. I want to add reasonable titles, clip out long pauses (like lunch), etc. I also hope to carve out each individual presentation for the benefit of each of the presenters to use as they see fit.

Per our pre-conference commitment announced plans, we hope to make it available by the end of September to those that were paid attendees (and presenters) and those that paid specifically to have early access to the video. Eventually the ZRDC 2025 video(s) will be released in public.

A Few Lessons Learned

It wouldn't be a first conference if there weren't a few lessons learned in putting on a conference.

- I should have held myself to the same standard as the other presenters in getting my presentation done on time to be included in the ZRDC 2025 Proceedings. I focused more on my paper, and I should have given equal time to my presentation. My paper made it into the Proceedings, but my presentation did not.
- Although we set up the ZRDC email list, we didn't make very good use of it and that abused the trust of those who in good faith got on the list and expected periodic updates. That was on us, and we'll do better next time.
- We didn't have a photographer lined up in advance. Fortunately KaytLynn Inman stepped up (and had come with her 35mm digital camera) to take good photographs. We will post a photo album of ZRDC 2025 photographs soon.
- The door prize vendor sponsors were amazingly generous, especially given the tight timeline for donations.
- In the end we had three papers submitted for ZRDC 2025. These are papers, not presentation slide decks. I view that as a reasonable *re-start* given that Amateur Radio technical paper authors are a bit out of practice from the absence of the Digital Communications Conferences the past several years.
- We didn't have good infrastructure set up such as well-planned shared Google Docs, Google Forms, etc. for sharing necessary information.
- We didn't have an Internet chat / request / questions system (and didn't monitor Zoom) arranged in advance. Kay Savetz K6KJN agreed to monitor the Zoom stream for any questions from the virtual attendees.
- If you're going to have virtual attendees, you need to have a dedicated virtual host for the conference that doesn't have any other conference duties.
- Neither Tina nor I managed the lightning talks planned for the lunch period, so they didn't happen as planned. We interspersed a couple of lightning talks into gaps in the schedule.
- For good attendance, a conference really requires naming a date and location / venue *about a year in advance* so that potential attendees can make advanced plans such as requesting time off and travel planning for reasonable economy.
- We learned the hard way that we shouldn't plan on involvement in another conference adjacent to ZRDC - it's just too much work. We loved being involved with planning and helping at GRCon 2025, but in the end our preparations for ZRDC 2025 suffered a bit for that.
- The venue, as we booked it for a *day* long conference, wasn't conducive to us remaining into the evening to have fun with demonstrations, vendors, "show and tell" with units brought by and being shown off by attendees.
- September is a universally busy month, with lots of "end of Summer" commitments. We were told at least a dozen times that folks would have traveled to ZRDC but had committed to other events in September.
- I have to be much more realistic with *my* available time to complete projects *well* in advance of ZRDC. Last minute adjustments are inevitable and time needs to be allocated for managing such adjustments. Some of my time sinks were unavoidable, such as family health issues, and an unplanned trip out of town the weekend before ZRDC 2025. I had hoped to have a demonstration of an operating MMDVM based repeater, to include M17 and MMDVM-TNC (and clients, and M17 radios), which I didn't end up having time to complete.
- I had hoped to have some major Zero Retries announcements of completed new Zero Retries features, but those weren't completed in time for ZRDC 2025.
- We didn't plan, in advance, on a post-conference survey of the attendees. We now plan to do one, which will be emailed to all the attendees, virtual and in-person.

ZRDC 2026?

After a few days of real rest this past week, Tina and I debriefed each other about our impressions of ZRDC 2025 and asked each other if we wanted to attempt ZRDC 2026?

The answer is Yes, there will likely be a ZRDC 2026, but probably not in September.

Beyond that, all details, especially location, are To Be Determined, but *To Be Announced* as soon as possible. We really, really learned *that* lesson.

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The [Zero Retries Store](#) is now open for business with quality Zero Retries branded merchandise and items being retired from Steve's N8GNJ Labs.

These bits were handcrafted (by a mere human, not an Artificial Intelligence bot) in beautiful Bellingham ([The City of Subdued Excitement](#)), Washington, USA, and linked to the Internet via [Starlink Satellite Internet Access](#).

See the **Zero Retries Boilerplate** page for significant acknowledgements and other information relevant to Zero Retries. For new readers of Zero Retries, that page, and the **About Zero Retries** page has useful information to check out.

My ongoing *Thanks* to:

Tina Stroh KD7WSF for, well, *everything!*
Jack Stroh, Late Night Assistant Editor Emeritus
Shrek Stroh, Late Night Assistant Editor In training

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Keywords in **Bold** are regular mentions in each issue.

Footnotes for this Issue

To see the relevant sentence for the footnote, just click the footnote number.

[1](#)

For being on the alert for such a development, I have to acknowledge Bob McGwier N4HY who said, at a conference some years ago (apologies for not spending the time to find the reference) - paraphrased "and lastly, in Software Defined Radio, you haven't seen anything yet. Wait until you see Machine Learning applied to SDR." Hearing that, from N4HY, put me permanently on the alert for such a development, and now here it is in GNU Radio 4.x.

[2](#)

And this *only my interpretation* of how I would handle using or developing an "unspecified digital code" on Amateur Radio spectrum would be to post it on, for example, GitHub or a document on Digital Library of Amateur Radio & Communications (DLARC) on Internet Archive.

